AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the captioned patent application:

Listing of Claims:

1-19. (Cancelled)

20. (Currently Amended) An evoked neural response measuring device comprising:

a first implanted subsystem configured to be positioned proximate to at least one desired portion of an auditory nerve to provide stimulation to ~~at least one desired section of an~~ the auditory nerve, and further configured to successively ~~sample~~ detect an evoked neural response of the auditory nerve to said stimulation thereby obtaining a plurality of discrete values collectively representing an unsaturated, high gain amplified version of the evoked neural response of the auditory nerve; and

a second subsystem configured to reconstruct said plurality of discrete values into a continuous waveform.

21. (Currently Amended) The device of claim 20, wherein said first subsystem comprises:

an electrode array configured to stimulate said at least one desired section of the auditory nerve and to detect said ~~the~~ discrete values ~~value~~ of ~~a~~ said response of the desired auditory nerve section ~~to said stimulation~~ at successive time intervals; and

a high gain amplifier having a reference voltage input configured to be ~~set to a value~~ set to a first of said detected discrete values of said evoked response at a first time, and a signal input configured to be ~~set to a value~~ set to a second of said detected discrete values of said evoked response at a second time subsequent to said first time, and wherein said amplifier is configured to amplify the difference in said discrete values of said evoked response between said first time and said second time.

22. (Currently Amended) The device of claim 20, wherein said second subsystem comprises:

an integrator configured to reconstruct said plurality of detected discrete values into ~~a~~ said continuous waveform.

23. (Currently Amended) The device of claim 21, wherein said reference voltage input is configured to be ~~set to a value~~ set to said first of said detected discrete values of said evoked response at the commencement of each said time interval, and wherein said signal input is configured to be ~~set to a value~~ set to said second of said detected discrete values of said evoked response at end of each said interval.

24. (Previously Presented) The device of claim 21, wherein said first subsystem further comprises:

a sample-and-hold circuit having an input from said electrode array configured to set the reference voltage of said amplifier equal to a present value of the evoked response at the commencement of each said interval.

25. (Currently Amended) A method of measurement of an evoked neural response in a cochlear implant comprising:

stimulating a desired section of an auditory nerve to elicit an evoked neural response via a first implanted subsystem positioned proximate to the section of auditory nerve;

successively ~~sampling~~ detecting the evoked neural response of the auditory nerve at a plurality of intervals via the first implanted subsystem to obtain a plurality of discrete values collectively representing an unsaturated, high gain amplified version of the evoked neural response; and

reconstructing said plurality of discrete values into a continuous waveform.

26. (Currently Amended) The method of claim 25, wherein sampling the evoked neural ~~response at a~~ response at the plurality of intervals ~~includes:~~ comprises:

successively altering a reference voltage of a high gain amplifier at the commencement of each said ~~sample~~ interval such that each discrete value equals an amplified form of the voltage change in the evoked neural response over said interval.

27. (Previously Presented) The method of claim 26, wherein each altering of said reference voltage comprises:

setting said reference voltage equal to a present value of the evoked neural response at the commencement of each interval.

28. (Previously Presented) The method of claim 25, wherein each said sampling comprises:

obtaining from a sensor at a first time a first value representing the evoked neural response;

setting a reference voltage of a high gain amplifier equal to said first value of the evoked neural response;

obtaining from said sensor at a second time subsequent said first time a second value representing the evoked neural response;

setting a signal input of said high gain amplifier equal to said second value of the evoked neural response;

amplifying with said high gain amplifier the voltage difference between the said first and said second values of the evoked neural response.

29. (Currently Amended) The method of claim 28, wherein setting the reference voltage of the high gain amplifier equal to said first value comprises:

setting the reference voltage of the high gain amplifier equal to the present value of the evoked neural response at the commencement of each said ~~sample~~ interval.

30. (Currently Amended) The method of claim 25, wherein reconstructing said plurality of discrete ~~values into a~~ values into the continuous waveform comprises:

integrating said plurality of discrete values to obtain said continuous waveform.

31. (Previously Presented) The method of claim 28, wherein obtaining said first and second values comprises:

utilizing one or more electrodes of an electrode array of a cochlear implant to obtain said values.

32. (Currently Amended) A device for measuring of an evoked neural response in a cochlear implant comprising:

means for stimulating a desired section of an auditory nerve to elicit an evoked neural response and ~~means~~ for sampling the evoked neural response ~~of an auditory nerve~~ at a plurality of intervals to obtain a plurality of discrete values collectively representing an unsaturated, high gain amplified version of the evoked neural response; and

means for reconstructing said plurality of discrete values into a continuous waveform.

33. (Currently Amended) The device of claim 32, wherein said means for sampling the evoked neural ~~response at a~~ response at the plurality of intervals includes:

means for successively altering a reference voltage of a high gain amplifier at the commencement of each said ~~sample~~ interval such that each discrete value equals an amplified form of the voltage change in the evoked neural response over said interval.

34. (Previously Presented) The device of claim 33, wherein each means for altering said reference voltage comprises:

means for setting said reference voltage equal to a present value of the evoked neural response.

35. (Previously Presented) The device of claim 32, wherein each said means for sampling comprises:

means for obtaining from a sensor at a first time a first value representing the evoked neural response;

means for setting a reference voltage of a high gain amplifier equal to said first value of the evoked neural response;

means for obtaining from said sensor at a second time subsequent said first time a second value representing the evoked neural response;

means for setting a signal input of said high gain amplifier equal to said second value of the evoked neural response;

means for amplifying with said high gain amplifier the voltage difference between the said first and said second values of the evoked neural response.

36. (Currently Amended) The device of claim 35, wherein said means for setting the reference voltage of the high gain amplifier equal to said first value comprises:

means for setting the reference voltage of the high gain amplifier equal to the present value of the evoked neural response at the commencement of each said ~~sample~~ interval.

37. (Currently Amended) The device of claim 32, wherein said means for reconstructing said plurality of discrete ~~values into a~~ values into the continuous waveform comprises:

means for integrating said plurality of discrete values to obtain said continuous waveform representing an amplified form of said evoked neural response.

38. (Previously Presented) The device of claim 35, wherein said means for obtaining said first and second values comprises:

means for utilizing one or more electrodes of an electrode array of a cochlear implant to obtain said values.